

## Differential effects of various African nightshade species on the fecundity and movement of *Tetranychus evansi* (Acari: Tetranychidae)

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### Abstract

The tomato red spider mite *Tetranychus evansi* Baker & Pritchard is a serious pest of solanaceous plants worldwide. Management of this oligophagous pest in African nightshades has been a challenge to smallholder African farmers due to its high reproductive rate and rapid development of resistance to synthetic pesticides. The aim of the present study was to determine the influence of leaf trichomes on *T. evansi* by comparing its fecundity and movement on the leaf surfaces of five African nightshade species, namely *Solanum sarrachoides* Sendter, *S. villosum* Miller, *S. tarderemotum* Bitter, *S. americanum* Miller and *S. scabrum* Miller. Data were recorded in the laboratory at  $23 \pm 1^\circ\text{C}$ , 50–70% relative humidity and a 12 h light:12 h dark photoperiod for the effect of trichome type and density of the abaxial leaf surface on mite fecundity. Distances travelled by mites on the leaf surface from the edge of a thumbtack pin inserted on the leaf were also recorded. Different trichomes, glandular and non-glandular types, were identified. There was a significant negative correlation of fecundity and distance walked by mites with the density of glandular trichomes. Significantly fewer eggs were laid on *S. sarrachoides* in comparison with the other *Solanum* species. The distance walked by mites was also significantly shorter in this species, indicating that higher densities of glandular trichomes interfere with mite movements. These results suggest that African nightshade genotypes differ in their levels of resistance to *T. evansi*, which is partially associated with differences in trichome types and their densities.

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Key Words:

- [resistance](#);
- [Solanum spp](#);
- [Tetranychus evansi](#);
- [trichome](#)